**Linear Search vs Binary Search**

**Working**

* Linear search iterates through all the elements and compares them with the key which has to be searched.
* Binary search wisely decreases the size of the array which has to be searched and compares the key with mid element every time.

**Data Structure**

* Linear search is flexible with all the [data structures](https://www.upgrad.com/blog/data-structures-interview-question-answers/)like an array, list, linked list, etc.
* Binary search cannot be performed on all data structures since we need multi-directional traversal. So data structures like the single linked list cannot be used.

**Use Case**

* Linear search is generally preferred for smaller and random ordered datasets.
* Binary search is preferred for comparatively larger and sorted datasets.

**Effectiveness**

* Linear search is less efficient in the case of larger datasets.
* Binary search is more efficient in the case of larger datasets.

**Time Complexity**

* In linear search,

**Best-case complexity is O(1)**:- where the element is found at the first index.

**Worst-case complexity is O(n)**:- where the element is found at the last index or element is not present in the array.

* In binary search,

**Best-case complexity is O(1)**:- where the element is found at the middle index.

**Worst-case complexity is O(log2n).**